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ABSTRACT

The Commission on Vocational Education and Career Opportunities in the District of Columbia Public Schools (DCPS) studied vocational education and career preparation activities in the DCPS and explored strategies for improving them. The study established that DCPS is failing to fulfill its career preparation mission. The problems of too many dropouts, inadequate skill development, and unsystematic career planning were deemed particularly unacceptable. Problems plaguing the DCPS career preparation program were identified at all levels from elementary through postsecondary. The following 15 recommendations for reforming the DCPS career preparation program by integrating academic and vocational education were formulated: increase total units required for graduation, set course achievement standards, require mastery of more advanced academic skills, require a computer literacy course, require a four-course major, form stronger linkages to postsecondary training, make contextual and cooperative learning priority topics for teacher training, increase teacher exposure to the applied uses of knowledge, improve linkages to the world of work and employers, address low student performance through expanded developmentally oriented remediation, require a career exploration course, systematize and expand career guidance, expand counselor training, and strengthen career information flows via interagency relationships. (Appended is a list of consultants/liaisons assisting in commission.) (MN)

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Linking Learning with Earning:

A Report of the

Commission on Vocational Education
and
Career Opportunities

ED 364 699

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presented to

The District of Columbia Board of Education
Dr. R. David Hall, President

and the

Superintendent of D.C. Public Schools
Dr. Franklin L. Smith

Sandra Butler-Truesdale
Commission Chair

April 1, 1992

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INTRODUCTION

One of the major concerns of the Board of Education of the District of Columbia has been to set and enforce policies and support programs that would ensure the successful futures of the young people entrusted to us. The true measure of our success as a school system will always be the level of preparation we provide our students for post-secondary education and employment. As indications proliferated that urban centers across the country were falling far short of their mission to adequately prepare our students for competitive entry into the workplace, the Board of Education decided to enlist the help of specialists in vocational education and business leaders in assessing our current programs and in refining our plans for the future.

A year of painstaking review, observation and analysis has culminated in the publication of Linking Learning with Earning, the comprehensive report of the Commission on Vocational Education and Career Opportunities. The findings of the report corroborate the Board's suspicions. The Vocational Education programs of the D.C.Public Schools are on a par with most other such programs throughout the country. That is, they are in need of immediate upgrading and integration with the mainstream curricula of the system. Unlike some other school systems, however, whose challenges and resource limitations are similar to our own, the D. C. Public Schools has a number of flagship Public Private Partnership programs that embody all of the elements necessary to provide world-class vocational and career education. These are our model programs which we intend to replicate in form and content until all students have the opportunity for academic achievement and success in the workplace.

Profound self-examination is always a double-edged sword for any school system. Just as we release the recommendations of the blue ribbon commission, along with our timeline for the full implementation of those recommendations, we run the risk of having the public focus on the deficiencies we ourselves have uncovered. This is a risk we have to take in fulfillment of our commitment to the citizens, and especially the children, of the District of Columbia.

We are grateful to the members of the commission for their tireless efforts in producing the most comprehensive study of its kind. We encourage the participation and support of the broader business community in making our vision for vocational education in the District of Columbia a reality. And, we call upon the government officials, parents and students of the District to join us in inaugurating a new era in vocational education and career development for the District of Columbia, one that truly does link learning with earning.

Sandra Butler-Truesdale
Ward 4 Representative
D. C. Board of Education

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Preface: The Commission and its Work

All aspects of community life can be improved with the provision of vocational education and career training that ensures our students will pursue successful life options. Commission members are expected to offer professional advice on how vocational education courses and career training can be more responsive to the needs of local students and the marketplace, to facilitate a smooth transition from school to work for young people and adults in the District of Columbia.

With these words, R. David Hall, President of the District of Columbia Board of Education, inaugurated the Commission on Vocational Education and Career Opportunities in the Spring of 1991. We, the undersigned members of this Commission, are pleased to present this report to the District of Columbia Board of Education in fulfillment of this challenging assignment.

Neither students, nor Washington-area employers, nor the Greater Washington Community, can afford poor school system performance in preparing the city's youth for productive and meaningful employment. To correct what it perceives to be a presently-unacceptable situation, the Commission advocates a radical reorientation of DCPS's approach to vocational education specifically and to teaching and learning generally. Chapters III and IV present fifteen specific recommendations for consideration by the Board of Education.

Our Commission has consisted of District of Columbia citizens representing a broad diversity of perspectives -- employers and union officials, educators and labor market analysts, community leaders, parents and students. Because of this diversity, we are particularly pleased that we are able to present our findings and recommendations unanimously.

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In our deliberations, we were assisted by staff coordinated by the Committee on Strategies to Reduce Chronic Poverty of the Greater Washington Research Center, by liaisons representing the District of Columbia Public Schools, by experts from the National Center for Research in Vocational Education, and by other specialists and concerned citizens. These persons, listed in the Appendix to this report, deserve our thanks.

We also wish to express our appreciation to former Commissioners Dr. Jose Figueroa and Dexter Jackson-Herd, and the many persons -- current and former board members, teachers, parents, school system officials, civic leaders, and federal government officials -- who contributed to this report.

Finally, we are grateful to the individuals whose skills enhanced the report's presentation and readability -- Jessie MacKinnon, Director of Marketing for the Greater Washington Research Center, for editing and typography; Joy Williams, Administrative Assistant to the Strategies Committee, for providing word processing skills; and Steve Carter for the cover design.

We also gratefully acknowledge financial support for our work from the District of Columbia Board of Education, the Rockefeller Foundation, the Jovid Foundation, the Eugene and Agnes E. Meyer Foundation, the Morris and Gwendolyn Cafritz Foundation, and the Strategies Committee.

Executive Summary

This document presents the findings and recommendations of the Commission on Vocational Education and Career Opportunities in the District of Columbia Public Schools. This commission of citizens was appointed by School Board President R. David Hall and chaired by School Board Member Sandra Butler-Truesdale.

Chapter I: DCPS is Not Fulfilling its Career Preparation Mission

The career preparation mission of DCPS is to equip all students with those basic and advanced academic skills, workplace competencies, and personal qualities that are prerequisite to entry and advancement in attractive careers. This is essential to enhance the life chances of students. It is equally crucial to Washington-area employers who depend on a trained, productive work force.

Currently, DCPS fails to fulfill this mission for the majority of its students. Three deficiencies are particularly unacceptable:

- **Too Many Dropouts**. DCPS fails to hold more than half of its students long enough for them to earn a high school diploma. Hampered by a lack of marketable skills and credentials, these dropouts will spend their working lives trapped in employment that is poorly paid, unstable, and unfulfilling.

- **Inadequate Skill Development**. DCPS fails to equip its graduates with the basic and advanced academic skills, work-place competencies, and personal qualities that are prerequisite to either post-secondary education or immediate employment. This seriously limits opportunities for both entry-level jobs and career advancement.

- **Unsystematic Career Planning**. DCPS students generally receive only limited and unsystematic vocational counseling, information about career alternatives, and exposure to the world of work. This importantly disrupts their ability to form appropriate personal plans concerning education and employment.

These deficiencies call for changes in the classes and programs labeled "vocational education." Equally, they raise concerns about DCPS's overall educational activities, including graduation requirements, the availability of remedial instruction, the relationships between academic and vocational coursework, and the instructional style and content of all classes.

Chapter II: Vocational Education and Career Preparation Activities in DCPS Today

The career preparation currently offered by DCPS is plagued by serious problems at all levels:

- **In elementary schools**, exposure to the world of work is treated as an "extra" rather than an important educational objective.

- **In junior high school and high school vocational education**, activities consists primarily of separate classes teaching narrow skills to non-college bound students. Such activities no longer represent the most important role for vocational education, which should instead be a dimension integral to all fields of study. Additionally, these classes often are limited by students who are unprepared and poorly motivated, undertrained teachers, out-of-date curricula, and obsolete equipment and inadequate facilities.

- **The academic program in DCPS secondary schools** maintains low expectations for student performance, fails to remediate students not prepared to meet achievements standards, utilizes traditional teaching methods that fails to harness the pedagogical power of contextual and cooperative learning, and maintains de facto tracks that isolate academic and vocational learning to the detriment of both.

- **Innovative career-oriented programs** in a number of DCPS schools exemplify some exciting approaches to improved education. However, they have proliferated haphazardly, and little effort have been made to transfer these models to the school system generally.

- **Post-secondary opportunities for vocational training** exist throughout the Washington area. However, DCPS students are hampered in taking advantage of them by deficiencies in their high school preparation and by lack of coordination between DCPS and post-secondary schools.

Chapter III: A Reform Strategy Based on Integrating Academic and Vocational Education

In response to such deficiencies, DCPS must institute fundamental changes throughout both its vocational and academic programs. The central theme in the Commission's recommendations is integrating academic and vocational education.

Requirements for high school graduation should be made more stringent, more specific, and more uniform for all students regardless of post-graduation career plans. Specifically:

R1. **Increase Total Units**. To graduate from a DCPS high school, a student should complete 22 Carnegie Units, rather than the present 20.5, during grades nine through twelve.

R2. **Set Course Achievement Standards**. No course should be counted as fulfilling a graduation requirement unless it covers an important body of knowledge and skills. No student should receive credit for a course without demonstrating mastery of the course content through standardized testing or other rigorous evaluation procedures.

R3. **Require Mastery of More Advanced Academic Skills**. To graduate, a student should complete three years of mathematics (including one year of algebra and one year of geometry), three years of science (including one year of laboratory science), and three years of social studies.

R4. **Require a Course in Computer Literacy**. To graduate, a student should complete a one-semester course on computer concepts and keyboarding.

R5. **Require a Four-Course Major**. To graduate, a student should select a major field and complete two years in a coherent sequence in that field.

R6. **Form Stronger Formal Linkages to Post-Secondary Training**. In occupational fields where a four-year college degree is not required, DCPS should develop "2+2" or "tech prep" coordination relationships with area post-secondary schools.

Strengthened requirements do not improve educational outcomes, particularly for minority inner-city students, unless accompanied by changes in the styles of teaching and learning. The instructional style in all DCPS classrooms -- both "academic" and "vocational" -- should change to emphasize contextual and cooperative learning. Specifically:

R7. **Make Contextual and Cooperative Learning Priority Topics for Teacher Training**. All teachers in DCPS schools should be retrained in the principles and techniques of contextual and cooperative learning, as well as the work-readiness skills that students need to develop.

R8. **Increase Teacher Exposure to the Applied Uses of Knowledge**. DCPS should solicit the cooperation of Washington-area employers for short-term "internships" or similar experiences during which teachers gain direct exposure to the world of work.

R9. **Link Academic and Applied Classes**. Mechanisms such as "block scheduling" and release time for joint teacher planning should be used to coordinate academic classes and "major field" classes for the same students.

R10. **Improve Linkages to the World of Work and to Employers**. Through such means as upgraded cooperative education linked to classroom learning ("youth apprenticeships") or school-based enterprises, students should have access to structured work experiences. Local employers should also be utilized to provide guest speakers, plant tours, and similar short-term activities. Such endeavors should provide exposure to jobs and careers and, more broadly, the applied uses of knowledge.

R11. **Address Low Student Performance via Expanded Developmentally-Oriented Remediation**. Students not currently prepared to succeed in rigorous classes should be assisted through supplementary tutoring or remedial instruction. This remediation should be conducted in the contextualized and cooperative learning styles. While assistance should be provided at all grades where required, particular emphasis should be placed on the seventh and eighth grades to assure that students start high school fully prepared.

The Commission also makes four recommendations to strengthen DCPS's vocational guidance and career counseling:

R12. **Require a Course in Career Exploration and the Requirements of the World of Work**. In the ninth grade, every student should complete a one-semester course in vocational guidance and career exploration. During the course, each student should prepare a career development plan establishing occupational goals and educational plans consistent with these goals. Students should also learn about how to find and keep jobs and the skills and personal qualities that employers value.

R13. **Systematize and Expand Career Guidance**. Throughout the secondary school years, periodic conferences between students and counselors -- at least once per semester -- should measure students' progress against their career plans. To provide continuity, the same counselor should stay with one group of students over multiple years.

R14. **Expand Guidance Counselor Training**. Counselors should receive training to increase their understanding of the world of work. Counselors' credentials should recognize that they need both academic and career-oriented preparation.

R15. **Strengthen Career Information Flows via Interagency Relationships**. DCPS should strengthen working relationships with the Department of Employment Services, the Private Industry Council, the State Occupational Information Coordinating Council, and private organizations through which these agencies would routinely provide speakers, career information, occupational forecasts, and at-school placement services for students.

Chapter IV: Implementing the Commission's Recommendations

DCPS cannot be expected to implement all these recommendations immediately. However, DCPS should adopt them as goals and begin incremental steps consistent with them. Many of the recommended changes can be accomplished by reallocating existing resources, while others will require additional budgetary outlays. Administrative consolidations should be effected to further the integration of vocational and academic education. Finally, to symbolize a break with the past, the term "vocational education" should be phased out.

I. DCPS Is Not Fulfilling its Career Preparation Mission

The world of work belongs to those with marketable skills. Workplace know-how is the first line of defense against poverty and unemployment.

As the twentieth century closes and the twenty-first century dawns, the world of work belongs to those with marketable skills. This principle is clear in the lives of individuals, where educational and employment credentials lead to earnings adequate to support families, stable jobs to ensure personal security, and recognized careers to undergird individual self-respect. Conversely, lack of such credentials all too often consigns a person to a life at the margin of both the economy and the community.[1] The same principle applies to businesses and regional economies. Facing formidable nation-wide and world-wide competition, employers in the Washington area depend on a skilled, productive work force to survive and grow.[2] For both individual Washingtonians and the Greater Washington region, workplace know-how is the first line of defense against poverty and unemployment.

In such a world, the public educational system is, more than ever, one of the most important institutions in the life of the community. For the majority of Washingtonians, the District of Columbia Public Schools (DCPS) is either the primary source or the exclusive source of career-preparation education. If the schools do not perform their training mission, their students will carry the burden of this failure throughout their working lives.

The Career Preparation Mission of DCPS

What is the mission that the schools are called upon to perform?[3] In the following statement, the Commission summarizes what it believes is the career preparation responsibility of the District of Columbia Public Schools:

The District of Columbia Public Schools, in partnership with the Greater Washington community, should offer to all District students a quality education that opens to them opportunities for entry and advancement in attractive careers. Students should develop a solid foundation in the basic and advanced academic skills, workplace competencies, and personal qualities that are prerequisite to either post-secondary education or quality employment. Students should acquire an understanding of a range of occupations and form appropriate career plans.

Key words in that mission statement signify important aspects of the Commission's approach. By referring to all students, the statement signals that career preparation is important for all young persons -- whether or not they enroll in "vocational" courses, and whether they seek work

immediately after leaving school or receive post-secondary education first.[4] By emphasizing quality education, the statement recognizes that the best opportunities in today's job market are reserved for workers who bring from their schooling considerable skills and knowledge. By discussing careers, the statement focuses on student's lifetime opportunities as well as immediate entry-level jobs. The implications of these and other elements of the Commission's approach will be made clear later in this report.

Three Ways this Mission is not Being Fulfilled

Prior to that, however, the mission statement can be used as a yardstick against which to measure the current performance of DCPS.

The Commission learned that vocational education in DCPS is considered by some experts to compare favorably to other large urban school systems.

Chapter II profiles the vocational education and career preparation programs of DCPS today. In developing this profile, the Commission encountered a number of creative, dedicated educators and impressive educational activities within DCPS. Indeed, the Commission learned that vocational education in DCPS is considered by some experts to compare relatively favorably to vocational education delivered in other large urban school systems. However, in common with other school systems nationwide, vocational education in the District of Columbia exhibits a multiplicity of extremely serious shortcomings. Concurrently, the "academic" (non-vocational) education offered by DCPS suffers from equally serious deficiencies that undermine students' preparation for the world of work. Both types of failures -- those in vocational classes and those in the rest of the student's schooling -- seriously limit the career preparation received by the majority of DCPS students. These failures hamper virtually all DCPS students, both those pursuing "vocational" concentrations and those in "academic" ones. Accordingly, the Commission finds that the overall performance of DCPS falls disastrously short of fulfilling the mission stated on the previous page.

The Commission finds three deficiencies in current performance particularly unacceptable. These three, which will be discussed in turn, are: school dropouts; inadequate work-readiness; and inadequate career planning.

First Deficiency: Too Many Dropouts

Approximately 45 percent of students entering the tenth grade in the District of Columbia eventually fail to receive their high school diplomas.[5] Because many additional students drop out in junior high school, the Commission concludes that more than half of students for which

DCPS is responsible do not complete high school. In April 1991, President Bush and the nation's governors announced educational goals for the nation by the end of the present decade. These goals included reducing the proportion of students not graduating from high school to ten percent.[6] The current rate in the District of Columbia is five times the national goal.

The Commission concludes that more than half of DCPS students do not complete high school -- a rate five times higher than the national goal.

Studies by DCPS provide insights into the reasons students terminate their education prematurely.[7] According to these studies, a majority of dropouts are identifiably at-risk long before they leave school. Many have histories of discipline problems or suspensions, an immediate family member who also dropped out of school, and strained personal finances. However, forty percent have passing grades the last year they attended school, suggesting that many are functioning competently but are not engaged by their educational experience. Many place little value on school-based learning and express dissatisfaction with the curriculum and instructional climate. From these factors, the Commission concludes that many (although obviously not all) potential dropouts could be retained if DCPS did a better job. In particular, improved counseling could identify and work with at-risk students, and more engaging, relevant classroom work could change students' perceptions of the value of schooling.

Essentially every dropout enters the job market with inadequate career preparation. A high proportion spend their working lives trapped in employment that is unstable, poorly paid, and unfulfilling. Others leave the job market entirely; rather than contributing income to their families and taxes to their community, they become burdens on society through the costs of crime and welfare.

Essentially every dropout enters the job market with inadequate career preparation.

Consider, for example, a young man or woman who drops out of a DCPS high school in 1992. These young people lack the diploma that many employers consider a minimum indicator of educational achievement and personal stability. They also have a high probability of commanding only limited functional literacy -- for example, an ability to read at no more than the sixth grade level.[8] They could try to compete for jobs that do not require a diploma -- about 30 percent of all jobs in the Washington area. But with low literacy, they are probably limited to as few as five percent of Washington-area jobs. Moreover, 85 percent of their job-seeking competitors have high school diplomas, and many have substantially more credentials than that.

Small wonder then that for these dropouts, the probability of being unemployed is nearly double that of high school graduates. When they do find a job, they can expect to earn about 30 percent less than if they had graduated and to have less than a 50-50 chance of being covered by health insurance. Their opportunities for training and advancement are limited, and only five percent of the jobs they obtain will last as long as two years. During their peak working years, their earnings will average less than $15,000 per year. In short, from the day they leave school until they retire perhaps fifty years later, high school dropouts face an uphill battle for jobs, for income, and for self-respect.

Second Deficiency: Inadequate Work Readiness

Many DCPS graduates enter the world of work with an inadequate foundation in the skills that employers seek.

Among DCPS students who graduate from high school and then seek employment without further training, job opportunities are much greater than for dropouts. However, many DCPS graduate students enter the world of work with inadequate foundation in the skills, competencies, and personal qualities that employers seek in employees they are eager to hire and advance. This not only limits the employment opportunities available for these young persons. It also reduces the productivity and increases the costs of firms in the Washington area, hampering their ability to grow and to create jobs.

There is substantial consensus concerning the skills and qualities that employers find characteristic of productive employees and attractive in job applicants. The following list, taken from the Secretary of Labor's Commission on Achieving Necessary Skills, summarizes this consensus under the label of the "workplace know-how" needed for solid job performance.[9] In this list, "know-how" consists of five "competencies" and a three-part foundation of skill and personal qualities:

- **Competencies**: effective workers can productively use:

  Resources -- allocating time, money, materials, space, and staff;
  Interpersonal Skills -- working on teams, teaching others, serving customers, leading, negotiating, and working well with people from culturally diverse backgrounds;
  Information -- acquiring and evaluating data, organizing and maintaining files, interpreting and communicating, and using computers to process information;
  Systems -- understanding social, organizational, and technological systems, monitoring and correcting performance, and designing or improving systems;
  Technology -- selecting equipment and tools, applying technology to specific tasks, and maintaining and troubleshooting technologies.

- **The Foundation**: competence requires:

  Basic Skills -- reading, writing, arithmetic and mathematics, speaking, and listening;
  Thinking Skills -- thinking creatively, making decisions, solving problems, seeing things in the mind's eye, knowing how to learn, and reasoning;
  Personal Qualities -- individual responsibility, self-esteem, sociability, self-management, and integrity.

Unfortunately, a diploma from a DCPS high school does not guarantee that the graduate meets such requirements. Precise evidence on this subject is difficult to obtain. However, the Commission notes the following indications, which all point in the same direction:

- **Rates of Unemployment**. When young persons who had graduated from District of Columbia high schools in June 1990 were contacted six months later, 62.6 percent -- nearly two-thirds -- were unemployed.[10]

- **Test Scores**. Scores of DCPS students on standardized tests indicate relatively limited command of basic and advanced academic skills. In 1990, the average student taking the Scholastic Aptitude Test (SAT) scored 717, more than 20 percent below the national average of 900. Among eleventh graders talking the Comprehensive Test of Basic Skills (CTBS) in 1991, the median mathematics score was 16 percent below the national norm, and the median reading score was 36 percent below the national norm.[11]

- **Remediation in Post-Secondary Schools**. Each year, some 800 DCPS graduates enroll at the University of the District of Columbia. U.D.C. estimates that 47 percent of these students require remedial education prior to attempting college-level work.

- **Occupational Licensing**. A discouragingly-high proportion of DCPS graduates do not pass licensing examinations in the fields in which DCPS has trained them. For example, fewer than half of 1991 cosmetology graduates passed the licensing requirements for shampoo jobs; and fewer than half of all business education completers qualified for court reporting, data processing, accounting, or general office positions.[12]

- **Placement in Fields**. Less than half the students who graduate with DCPS occupational certificates[13] secure jobs in their areas of training. In one study based on the 1989-1990 school year, the percentage of vocational program completers who found employment related to their training ranged from 15 percent to 75 percent and averaged 48 percent.

- **Feedback from Supervisors**. When DCPS students are placed in "co-op" internships, their supervisors provide evaluations of on-the-job performance. The Commission was told that as many as 70 percent of DCPS students are rated as needing additional preparation to meet minimal employment standards.

Some of the failure of students to acquire these skills and competencies can be attributed to a low quality of instruction in vocational education classes. However, a great deal of it reflects deficiencies in the overall instructional program of DCPS, particularly the instruction provided in "academic" classes. After all, the list of skills, competencies, and personal qualities sought by employers presented earlier does not emphasize skills that are narrowly "vocational." Instead, the focus is on such "academic" skills as reading and thinking.

Many of DCPS students' deficiencies arise in academic classrooms -- their adverse effects are not limited to students in vocational education.

Because many of these deficiencies arise in academic classrooms rather than vocational ones, their adverse effects are not limited to students who concentrate in vocational education. Nor are their effects limited to students who seek employment immediately after graduation. This is because the employer-sought skills, competencies, and personal qualities are prerequisite not only to success in entry-level employment but also in post-secondary education and in employment following post-secondary education. Thus, the reforms suggested by the Commission to improve career preparation within DCPS will improve the education of all DCPS students, regardless of their educational and career plans. The Commission is not proposing improvements to vocational education at the expense of academic education. It does not urge reallocating attention and budgetary resources away from academic work. As will become clear throughout this report, the opposite is true.

Third Deficiency: Lack of Systematic Career Planning

One of the most important career-preparation responsibilities of the school system is to ensure that each student engages in systematic personal career planning. The Commission believes that, at a minimum, this process should include:

- Providing to students information about and exposure to a range of possible careers;
- Developing in students an understanding of the personal and educational requirements of the world of work in general and of specific occupations;
- Through vocational testing, counseling, and other means, assisting each student to develop insights into her or his individual strengths, weaknesses, interests, and preferences;
- Focusing students' attention on issues of employment and encouraging them to spend time considering their futures;

- Ensuring that the courses and activities pursued by each student during high school are relevant to and supportive of the student's career goals; and

- Providing to students information needed to pursue the goals they have chosen (for example, training them in how to be an effective job seeker or assisting them to identify relevant post-secondary educational programs).

If effectively implemented, such activities can contribute to the goal of ensuring no student leaves a DCPS high school without a specific, realistic career plan and the means to carry it out.

To achieve this level of career awareness and planning requires a program of vocational counseling that is systematic, extensive, continuous, thoughtful, and tailored to individual needs. Judged against this standard, the counseling and guidance received by the typical DCPS student is woefully inadequate.

The counseling and guidance received by the typical DCPS student is woefully inadequate.

One source of this deficiency is the level of staffing at the junior and high school levels. According to DCPS's 1989-1990 annual report, 60 counselors were assigned to 15,650 junior high school students, and 83 counselors were assigned to 15,622 high school students. The implied counselor-to-student ratio is 1:261 in junior high schools and 1:188 in senior high schools.

There are several reasons why this level of staffing is inadequate for each student to receive substantial vocational counseling. First, academic counseling (course scheduling) typically takes priority over discussions of long-term career plans. Second, counselors are often expected to handle a range of students' discipline, family, or social problems. But most importantly, many staff members listed as counselors do not spend their time counseling. Within DCPS, principals have considerable latitude in allocating their staff. In many schools, staff members classified as counselors patrol halls, serve as substitute teachers, or perform other administrative roles. While such duties may be important, this arrangement means that staff is not available for counseling.

The roots of this deficiency extend beyond staff numbers, however. To be effective, counselors need to be deployed in a systematic fashion and equipped with appropriate tools. The following problems currently limit the effectiveness of career counseling within DCPS:

- Many DCPS counselors have little experience with or personal exposure to the world of work outside the school system, particularly with the occupations and industries relevant to many of their students.[14]

- Although a number of government agencies generate current information on occupational trends and opportunities,[15] DCPS does not have systematic procedures for providing this information to counselors and training them in its use.

- Tests of occupational interest and aptitudes are used only to a very limited extent. The only District-wide initiative for vocational aptitude/interest testing involves administering the Ohio Inventory of Skills Test (OVIS) or Differential Aptitude Test (DAT) in the eighth grade. Apparently, even this initiative is limited in that not all students are tested, students often do not complete the test, and little follow up is provided to assist students and their parents to interpret and apply test results.

- When a student requires specialized assistance, school-based counselors need to be supplemented with specialized personnel such as speech pathologists, clinical psychologists, and physical therapists. DCPS has only 87 of these specialists to cover more than 80,000 students -- enough to serve only students with the most severe problems.

- Students normally develop their educational and career plans over a number of years and alter them as their information and maturity increases. Counseling to support this evolutionary process should have students meeting periodically with the same counselor to continue and deepen earlier discussions. Within DCPS, one counselor does not typically work with the same students over a number of years.

- According to DCPS policy, while in junior high school, each student works with a counselor to develop a plan of courses for achieving high school graduation. This plan is then documented in a Letter of Understanding. In practice, these Letters are rarely completed, let alone used in subsequent years to monitor progress.

These deficiencies in the guidance process, in turn, seriously hamper the effectiveness of DCPS's educational efforts. Students' course selections should reflect long-term educational and career goals, understanding of the requirements of the world of work, informed parental advice, and monitoring by professionally-trained school counselors. All too often within DCPS, they are allowed to reflect student ignorance, lack of parental and school involvement, and peer pressure. It is hardly surprising that many students find school irrelevant and drop out, while others graduate with a miscellany of courses that does not prepare them for their futures.

The Origins of Deficient Performance

Why do the three deficiencies just described dominate career preparation education in DCPS today? Why are many of DCPS's vocational offerings haunted by low enrollments, lack of coherent instructional programs, limited payoffs to graduates, and such symptoms of neglect as under-maintained physical facilities, obsolete equipment, and teachers who lack contact with current practices in their fields?

The Commission is well aware of circumstances within DCPS that hamper the delivery of effective vocational education/career preparation as well as other educational activities. These include an administrative structure that fragments responsibility; rapid turnover in DCPS

leadership;[16] personal, home, and community circumstances in which it is difficult for some students to concentrate on learning;[17] a student population weighted toward the disadvantaged;[18] and a restrictive fiscal environment emphasizing "downsizing." Nevertheless, the Commission firmly believes that such local circumstances are not the primary explanation for deficiencies in DCPS's career preparation activities.

Barriers to effective career preparation include rapid turnover in DCPS leadership, home and community circumstances, and a restrictive fiscal environment, among others.

From published research and expert advice, the Commission has learned that poor outcomes are observed broadly in career preparation education across the nation -- and even around the world. Traditional vocational education tends to be harshly criticized regardless of the circumstances of their local school district -- urban or suburban, affluent or impoverished. The National Assessment of Vocational Education (NAVE), completed by the U.S. Department of Education in 1989, confirmed what had been widely sensed -- that traditional vocational education, with its structure as an alternative to academic education and its emphasis on training in specific job skills -- is increasingly ill-suited to the employment needs of today and tomorrow. In particular, NAVE found that:[19]

- A large fraction of instruction in occupationally-specific skills is provided to students who had no intention of seeking employment in the fields in which they are being trained;
- Even among students seeking employment related to their training, only a minority obtain jobs to which their skill training is relevant;
- Most vocational education courses contribute little to development of academic skills (such as mathematics) in which their students have deficiencies that handicap them in the job market; and
- Economically-disadvantaged students are often limited to vocational programs of the lowest quality.

Problems such as those identified by NAVE, it should be emphasized, are not limited to the District of Columbia, or even to large urban school districts. They are nearly-universal deficiencies in traditional vocational education programs. From the universality of these problems, the Commission concludes that the basis of these difficulties is less how vocational education is currently being delivered -- by DCPS or other school districts -- and more what it fundamentally is.

Perhaps the greatest influence on "what vocational education fundamentally is" is its history. Many aspects of vocational education in America's schools today were developed in the early decades of the 20th century,[20] and they reflected the economic and educational circumstances of that era. Yet the differences in American society and its economy between then and now are profound. Among the key differences are the following:[21]

The Commission concludes that the basis of these difficulties is less how vocational education is currently being delivered, and more what it fundamentally is.

- Where once manufacturing and agriculture provided the majority of jobs, today services is the dominant source of employment growth.
- Where once the rate of change in the economy and technology was slow and steady, today it is rapid and accelerating.
- Where once the level of technical skills required of the majority of workers was modest, today it is higher and constantly rising.
- Where once work relationships were typically authoritarian and hierarchical, today they are often team-oriented and participatory.
- Where once many workers spent their working lives in one occupation, today it is more likely that they will evolve through a number of different occupations.
- Where once the typical level of new workers' educational achievement was high school completion or less, today it often involves post-secondary training.
- Where once career opportunities were determined in large part by race and gender, today possibilities for individuals are broader and strongly determined by credentials rather than personal characteristics.
- Where once instructional methods were limited to traditional classroom activities, today they can incorporate advanced computer technology and sophisticated new theories of learning.

To put it simply, vastly different times require vastly different education. That is why the Commission recommends reforms in the career preparation activities of DCPS that do not represent mere incremental changes or "tinkering around the margins."

The Commission Recommends a Different Approach

At the heart of the Commission's proposed changes lies the following conclusion: The problem with vocational education today is not that the vocational education "program" is poorly conducted but that it is considered a "program" at all. Traditionally, the primary career preparation activities at the secondary school level have involved a separate set of classes that teach specific job skills -- how to repair cars, style hair, or type business letters -- to students who are "not college bound." The Commission believes that such activities no longer represent the most important aspect of career preparation at the secondary school level. Instead, vocational education/career preparation should increasingly be a dimension or process integral to all fields of study and relevant to all students regardless of their future educational plans.

If the Commission were to recommend only modest changes, then the most fundamental problem haunting vocational education would be left unaddressed. This problem is the isolation of vocational education from the educational mainstream. Isolation has caused vocational education to become a politically vulnerable "step child" unable to command adequate resources or managerial attention. Relevant parties -- including educators, parents, employers, and students themselves -- stigmatize it as a "dumping ground" for students not functioning in mainstream classes. Isolation leads to toleration of lower standards concerning teacher preparation, rigor of instruction, and requirements for completion. Rather than representing sound, specialized career preparation, vocational education has become synonymous with no preparation at all.

The principles of teaching that are now considered "cutting edge" -- contextual and cooperative learning -- have long been the hallmarks of vocational instruction.

This isolation of vocational education from the educational mainstream has had equally negative impacts on the non-vocational activities of DCPS. It is ironic that the principles of teaching and learning that are now considered the "cutting edge" of excellent educational practices -- contextual learning and cooperative learning -- have long been hallmarks of vocational instruction at its best. "Academic" teaching within DCPS has been isolated from the learning opportunities created when abstract principles are linked to applications and traditional teaching is reinforced through "hands on" activities. If the Commission were to address only issues concerning the reform of vocational education per se, then it would leave unaddressed more basic deficiencies in DCPS's career preparation responsibilities -- deficiencies that harm DCPS students regardless of their fields of study.

The implications of the Commission's more comprehensive approach will be detailed in Chapters II through IV of this report.

II. A Profile of Vocational Education and Career Preparation Activities in DCPS Today

The previous chapter closed by announcing that the Commission recommends that DCPS make major changes throughout its educational programs. To place these changes in context, the present chapter describes how career preparation education within DCPS currently operates. It is divided into the following sections: career exploration in the early grades; traditional high school vocational education; the academic program in secondary schools; innovative career-oriented programs; and coordination between DCPS and post-secondary vocational training.

Career Exploration in the Early Grades

Symbolic of lack of explicit attention to vocational education throughout the District of Columbia Public Schools, there is no single document outlining a coherent sequence of career preparation instruction that a student would receive as s/he passes through grades kindergarten through twelve. The following description has been pieced together by the Commission from multiple documents and interviews.

Exposure to the world of work is treated as an "extra" in DCPS elementary schools rather than a central educational objective.

In the early childhood years, the District's career preparation emphasizes the development of a foundation in three areas necessary to develop workplace competencies: 1) social interaction; 2) self-esteem; and 3) working in teams toward an objective.

The sequence is continued with activities in the elementary school grades that expose students to possible careers. In addition to building a foundation in reading, writing, and critical thinking skills, these activities may include career fairs, career days, the use of visitors and outside speakers, field trips, and "shadowing" -- a practice wherein students are allowed to accompany and observe individuals at their place of employments.

Such efforts are undoubtedly beneficial to some extent. However, they are by their very nature sporadic and discretionary. Because principals' interest, parental involvement, and local business support vary from school to school, there is no consistency in program offerings. Individual events are typically not followed up to reinforce lessons. Nor are these events part of an explicit, multi-year curriculum designed to cover all aspects of the subject systematically. In short, exposure to the world of work is treated as an "extra" in DCPS elementary schools rather than a central educational objective.

Once students enter junior high school, career preparation education takes on two characteristics that shape it throughout the secondary school years. First, it becomes separated from academic instruction in classes explicitly labeled vocational education. Second, these classes emphasize training in narrow occupational skills such as office procedures or operating specific industrial machines. The most commonly-offered classes are business (particularly "typing"), home economics, and industrial arts ("shop"). Many of the industrial arts offerings are hampered by inadequate, obsolete, or inoperative equipment.[22] Five of the city's 25 junior high schools offer a course with a somewhat broader orientation entitled "exploring technology," and some junior high schools offer courses in career planning.

During the junior high years, all career-oriented courses are elective -- there are no system-wide requirements.

During the junior high school years, all career-oriented courses are elective; there are no system-wide requirements. The principal at each junior high school determines which vocational electives, if any, are offered. Generally, there is little coordination of course offerings between junior high schools and the senior high school to which they are "feeders."

Traditional High School Vocational Education

As students move from junior high school to senior high, the division between academic and vocational education becomes even more pronounced. DCPS does not operate an official "tracking" system in which students elect to pursue either an "academic" or a "vocational" high school diploma.[23] Nevertheless, these distinctions operate on a de facto basis.

To understand how that occurs requires an explanation of DCPS's requirements for high school graduation. To receive a DCPS high school diploma, a student must acquire 20.5 "Carnegie Units," where completion of one course for one semester generates .5 Carnegie Units. Within these 20.5 units, seven units can be earned in electives with no restriction. The remaining units must be obtained in courses in specific subject areas (for example, four units in English). Each high school typically offers a broad range of courses fulfilling subject area requirements. In fact, DCPS's **Secondary Master Course List** for school year 1991-1992 identifies more than 800 courses that can be offered at the city's secondary schools.

Tracking then unofficially arises as each student follows one of three typical strategies while obtaining a diploma:

- **Students intending to attend college** select both general electives and subject area electives to match college entrance requirements. Their class days are filled with foreign languages, algebra, and "advanced placement" English.

- **Students intending to pursue employment in a particular field** use unrestricted electives to meet the requirements of their career field, and they select subject-area electives from courses that are easier than those selected by college bound students. Their class days are filled with typing, general math, and non-advanced placement English.

- **Students with neither sort of specific plans** select an often-indiscriminate mix of "easy" classes to fulfill subject-area requirements and total credit requirements. Their class days are filled with "basic" English, choir, and "shop."

Thus, without official tracks, there emerges three groups of students attending different course sequences that, in all but name, are the familiar "academic," "vocational," and "general" tracks.

One element of DCPS policies that leads to this result is absence of a strong core of subjects required of all high school students. As will be discussed in Chapter III, the Commission believes that current graduation requirements allow too many electives and too many non-rigorous alternatives.

Without official tracks, three groups of students emerge -- in all but name, they are the familiar "academic," "vocational," and "general" tracks.

A second element of DCPS policies that leads to this result is placement of students into these "tracks" based on current academic performance. Specifically, the system's poorest achievers are steered away from college preparation and difficult academic courses. Instead of being provided with remedial instruction to prepare them for challenging academic coursework, they are permanently steered into "easy" classes.

All too often, they are simultaneously shunted into vocational education. A consequence is that vocational education classes become choked with students who are poorly motivated as well as ill-prepared. For example, according to one study, while the average ninth-grader in DCPS's academic high schools is performing at or slightly above expected grade level, the average ninth grader in vocationally-focused high schools is performing two to three grades below expected.[24] In such circumstances, it is difficult to maintain high standards within vocational education classes. Small wonder then that students pass through these classes acquiring few marketable skills.

Once such patterns become established, they create their own downward momentum. Among students and their parents, vocational classes become stigmatized as "for dummies." Employers view vocational education completion certificates as a warning flag rather than a credential. Political support for the program erodes, both within DCPS and in the community at large. From this perspective, the lack of attention and resources from which vocational education commonly suffers -- reflected in under-prepared teachers,[25] out-of-date curricula,[26] and inadequate facilities -- are a consequence of vocational education's poor reputation rather than a cause.

Despite such problems, vocational education remains a substantial presence within DCPS's secondary school programs. Among the more than 800 courses listed in DCPS's **Secondary Master Course List**, more than one-third represent vocational education offerings. More than 22,000 students -- about 27 percent of DCPS's student population -- enroll in one or more vocational course each semester. These students are taught by 394 career education teachers -- about six percent of DCPS's teaching staff -- at junior high schools, "regular" senior high schools, "career-oriented" high schools, and "career centers" throughout the city. In 1991, 375 seniors -- about 10 percent of all DCPS high school graduates -- received vocational completion certificates with their diplomas.

Secondary School Academic Programs

Many of the problems described for high school vocational education have counterparts in secondary school academic programs. As already noted, two interrelated problems are particularly important:

- **Low Academic Standards**. Throughout the academic offerings of DCPS high schools, course content is often "watered down" to match limited expectations for student performance or limited teacher enthusiasm. In consequence, DCPS students often do not master the basic and advanced academic skills and thinking skills that, as Chapter II noted, are key credentials for employment. Washington-area employers are often concerned that a DCPS high school diploma does not certify mastery of high-school level subjects.

- **Limited Remediation**. The Commission believes that the vast majority of DCPS students are capable of mastering subjects of substantial difficulty, but that many of them are currently prepared to do so only if supported with tutoring, remedial classes, and other assistance. Instead of providing such supports as needed and then bringing these student back into challenging classes, DCPS too often shunts them permanently into "easy" classes. The students then eventually either drop out or graduate with a de-facto general major. In either case, their preparation for employment is deficient.

Related to these problems is the issue of the style of teaching and learning in junior high school and high school classrooms. In the majority of DCPS academic classes, the instructional style is very traditional. It emphasizes one way-communication (teachers lecturing at students), rote memorization, responding to questions which have one unambiguous answer, and "paper and paper" tests.

Such approaches no longer represent "state of the art" pedagogy. Recent research on teaching techniques indicates that contextual applications and cooperative learning processes increases student motivation, learning, retention, and ability to transfer learning to new contexts.[27] These techniques are particularly effective with students who have difficulty in traditional learning situations.[28] They are also particularly suited to teaching "higher order" thinking skills -- such as exercising judgment, structuring ambiguous situations, evaluating data, and working in teams-- that Chapter II identified as particularly valued by employers.[29]

Contextual learning refers to a process in which concepts and principles are communicated in "real world" or simulated applied situations. Cooperative learning refers to a process in which students become "co-workers" with teachers rather than passive recipients of lessons; teachers function less as lecturers and disciplinarians and more as coaches and resources. Both approaches involve active, "hands on" grappling with complex situations; mere "word problems"--in which simple, memorized procedures are repeated in brief examples drawn from applied uses--do not fulfill this requirement.

As an example of contextual learning, instead of being taught in a traditional "theorem and proof" manner, the concepts of trigonometry could be taught through calculating the dimensions of the rafters of a house. As an example of cooperative learning, the rafter calculations might arise when a student team estimating the cost of materials for building a house became stumped by the complex roof area and turns to the teacher for advice. As an example of the two combined, the cost estimating activity might be part of a semester-long course examining all aspects of the construction industry.

Innovative Career-Oriented Programs

The primary place where state-of the art approaches to teaching such as contextual learning and cooperative learning are found within DCPS is in isolated special programs. In reaction to the multitude of difficulties noted in this report, recent reform initiatives within DCPS have often bypassed the official vocational education system to establish small-scale, separate programs. This has led to a proliferation of initiatives administratively outside the purview of the Assistant Superintendent for Adult and Vocational Education. Indeed, many of these projects operate as independent fiefdoms with little central control of any kind.

The most prominent examples in this category include the following:[30]

- The **Public Private Partnership Program** (PPP), initiated in 1982, operates in eleven high schools. Each school has a pre-professional occupational focus (for example, architecture or international studies). Each program operates like a magnet program within a school, and it receives advice, resources, and training from industrial sponsors. In school year 1989-1990, 932 students participated.[31]

- The **Public Service Academy** at Anacostia High School is one of five academies in city high schools developed in partnership with the National Academy Foundation. Each provides career-focused instruction integrated with academic courses. Additional DCPS academies are being developed.[32]

- **Project ACCORD** is a Congressionally-funded employability program serving a limited number of students at Anacostia High School. It utilizes state-of-the art video disc and computer-assisted instruction in simulated work situations and in a futuristic facility called "Classroom 2000." The emphasis is on proficiency in decision-making.

- The **Schools of Distinction** program is an experimental three-year program involving magnet junior high school, each with an industry as well as an academic focus. It utilizes team teaching and state-of-the-art teaching methods and technology.

One important characteristic of these special projects is close cooperation with outside employers -- local and national companies, agencies of the District and federal government, unions and building trade organizations, universities and colleges, and non-profit organizations. These partnership provide mentoring, money, equipment, technical assistance, programmatic intervention, and educational opportunities at out-of-school facilities.

Such projects breathe the fresh air of innovation into an often-stultified school system. The initiatives generally win praise for raising substantial outside support, employing energetic and creative staff, utilizing new technology, and implementing innovative pedagogy. They produce often-impressive results with their students.[33] Because the projects are actively marketed and enthusiastically promoted, they enjoy a much higher profile than conventional vocational education.

Nevertheless, the rapid growth of such initiatives within DCPS has important drawbacks. DCPS has no central approval process for programs before they are initiated. There are no clear policies concerning project selection, design, evaluation, or articulation with students' overall education. The result is haphazard proliferation of programs that are sometimes redundant and sometimes less than carefully designed. Generally, there is little communication between like enterprises or between project staff and their colleagues in the rest of the school.

The recommendations made by the Commission represent a systematization and universalization throughout DCPS of educational approaches piloted in these special initiatives.

Most importantly, there has been little systematic effort to translate these special projects into broader reforms of the school system -- that is, to use them as pilots for ideas to be adopted system-wide. In many ways, the recommendations made by the Commission in Chapter III represent a systematization and universalization throughout DCPS of educational approaches piloted in these special initiatives.

Coordination with Post-Secondary Training

In today's labor market, the majority of attractive careers require at least some training beyond high school. In some cases, this training can be acquired entirely on the job. However, most--including that sponsored by employers -- involves enrollment in post-secondary schools. Of particular relevance to the present report are post-secondary occupational training programs not involving four year college degrees.

Because community college and post-secondary vocational-technical schooling has not been a priority for the District of Columbia, such training programs are available to Washingtonians to a more limited extent than in other parts of the country. Nevertheless, students graduating from DCPS high schools have a variety of options that are both geographically and financially accessible. These options include the following:

- **Career Centers run by DCPS**. Annually, approximately 2,000 students over the age of 18 enroll for occupational training at the same career centers and career-oriented high schools which, as discussed earlier in this chapter, serve DCPS high school students.

- **The University of the District of Columbia**. Any graduate of a DCPS high school is automatically admitted to U.D.C. The school offers a varied menu of post-secondary occupational training including one-year certificate programs in information processing, sales, and secretarial science; two-year diploma programs in air conditioning, heating and refrigeration, and computer operations; and two-year associate degree programs in medical and technical fields, child development, urban planning, computer technology, and other fields.

- **Community Colleges in Maryland and Virginia**. Community colleges in Northern Virginia and in Montgomery and Prince George's counties have an open admission policy. While they charge District of Columbia residents slightly higher tuition than local residents, cost are still extremely modest (between $45 and $130 a credit hour).

- **Proprietary Schools**. Private, for-profit schools throughout the Washington area offer training in a variety of occupations. While some of these school have presented problems of training quality and integrity, others provide strong programs closely geared to employer needs. Tuition tends to be high, although it often can be covered by student loans or grants.

Many graduates of DCPS take advantage of these or other educational opportunities. For example, when polled prior to graduation, 63 percent of DCPS's 1990 graduates indicated that they intended to pursue some form of post-secondary education, and when these graduates were contacted six months after graduation, 71 percent of respondents indicated that they were enrolled.[34]

Given this high level of student interest, it is unfortunate that DCPS currently misses two important opportunities to facilitate their progress. The first opportunity refers simply to providing readily-accessible information to students. Basic data about post-secondary vocational training options -- such as their availability, location, and cost -- are not compiled and disseminated by DCPS in a systematic fashion, either to students or to counselors. Student and their families must be assertive and self-directed to obtain this information for themselves. Information about community colleges in the suburbs adjacent to the District of Columbia appear to be in particularly short supply within DCPS.

A more basic problem is that DCPS has established few relationships through which the curricula students follow during high school are coordinated with those in area post-secondary institutions. In many areas of the country, school systems and local post-secondary schools have developed formal cooperative relationships under which students' high school and post-secondary school years are planned as a unified educational program. Under such arrangements, high school classes usually emphasize academic skills, while the post-secondary schools focus on occupationally-specific training, building on the high school foundations. No time is wasted making up missing prerequisites or duplicating topics already covered. Such arrangements are often labeled "tech prep" programs or "2+2" programs.[35]

A basic problem is that the curricula DCPS students follow are not coordinated with local post-secondary institutions.

DCPS has recently signed an agreement with the University of the District of Columbia to develop such relationships in selected fields starting in School Year 1992/93. This is a step in the right direction. However, the effort is long overdue, has yet to be fully implemented, and needs to be repeated with other schools in the area.

III. A Reform Strategy Based on Integrating Academic and Vocational Education

Given the severity of deficiencies and the breadth of problems discussed in Chapters I and II, the Commission concludes that DCPS cannot fulfill its career preparation mission until fundamental changes are instituted throughout the system's vocational and academic programs. This chapter sets forth the Commission's recommendations for reform. As the chapter's title suggests, the theme unifying these proposals is integrating academic and vocational education.

Recommendations for the Secondary School Curriculum

The Commission believes that appropriate integration of academic and vocational education requires abolishing the de facto tracks.

The Commission believes that appropriate integration of academic and vocational education requires abolishing the de facto tracks -- academic, vocational, and general -- that continue to haunt secondary education within DCPS.[36] To accomplish this objective, the Commission recommends a substantial increase in the commonality of graduation requirements for students regardless of post-graduation career or educational plans. Simultaneously, these requirements should be made more specific and substantially more demanding than what DCPS currently requires.

Specifically, the Commission recommends that DCPS adopt the changes in graduation requirements as outlined on the following page.

The Commission believes that a DCPS high school diploma should represent a substantial amount of learning. The expanded state of knowledge in the late twentieth century, as well as the employer requirements described in Chapter II, demand that the credential society awards to signify completion of a standard minimum amount of education -- the high school diploma -- reflect more learning than the current 20.5 units represents. In a number of urban school systems comparable to the District of Columbia, such as Pittsburgh, 22 units are required to graduate; other systems require 24 or more. To complete 24 units in four years would require students to complete six courses each semester from grades 9 through 12.

Commission's Recommendations for Changes in Graduation Requirements

Carnegie Units Required for Diploma
(to be completed in Grades 9-12)

Subject Area	Current	Recommended	Change
English	4	4	0
Mathematics	2	3	+1
Science	2	3	+1
Social Studies	2	3	+1
Foreign Languages	1	1	0
Life Skills	1	1	0
Health/P.E.	1.5	1.5	0
Fine Arts	0	0	0
Computer Literacy	0	0.5	+0.5
Career Exploration	0	0.5	+0.5
Courses in Major	0	2	+2
Unspecified Electives	7	2.5	-4.5
Total	20.5	22	+1.5

In light of these considerations, the Commission recommends:

R1. **Increase Total Units**. To graduate from a DCPS high school, each student should complete 22 Carnegie Units, rather than the present 20.5, over the four years encompassed by grades 9 through 12.

In the same vein, the Commission believes that requirements for succeeding in classes should be strengthened. High school graduation should signify mastery of skills rather than simple attendance. This is necessary for a DCPS high school diploma to become recognized--especially by employers--as an meaningful credential. Strengthening requirements would also reflect the well-known pedagogical principle that the more students are expected to learn, the more they learn.[37]

Most of the responsibility for upgrading standards within DCPS classes must rest with individual principals and teachers. However, as one contribution toward this objective, the Commission recommends as follows:

R2. **Set Course Achievement Standards**. No course should be counted as fulfilling a graduation requirement unless it covers an important body of knowledge and skills. This body of knowledge should be clearly defined in the curriculum and to students. No student should receive credit for a course without demonstrating mastery of the course content through standardized testing or other rigorous evaluation procedures.[38]

In the same vein, the Commission believes that graduation requirements in specific subject areas should be strengthened, to reflect the high level of knowledge representing minimal competence in many academic fields today. Accordingly, the Commission recommends:

R3. **Require Mastery of More Advanced Academic Skills**. To graduate from a DCPS high school, every student should complete three Carnegie Units of mathematics (including one year of algebra and one year of geometry), three Carnegie Units of science (including one year of laboratory science), and three years of social studies.

R4. **Require a Course in Computer Literacy**. To graduate from a DCPS high school, every student should complete a one-semester course covering computer concepts as well as keyboarding skills.

This computer course should be completed no later than the end of the ninth grade so that teachers can assume students are computer-literate throughout the tenth through twelfth grades and can utilize computers in classes during these years.

Next, the Commission recommends that:

R5. **Require a Four-Course Major**. To graduate from a DCPS high school, every student should select a major field and complete two Carnegie Units (4 semester courses) in a coherent sequence in that field.

Existing Public Private Partnerships and Academies should be converted into majors -- with a primary role of creating opportunities for contextual and cooperative learning.

These major fields might be defined in a variety of ways -- for example, in terms of an academic field (e.g., a "science" major) or in terms of potential field of employment (e.g., a major in Health Care Occupations). Existing Public Private Partnerships and Academies, described in Chapter II, should be converted into majors; that is, the Public Service Academy at Anacostia High School, with modest adaptations, would become the school's public service major. However defined, a major should consist of a coherent sequence of rigorous courses. It should provide broad coverage of its subject rather than focus exclusively on narrow vocational skills. Thus, a major in the construction industry should explore all aspects of the industry (from architectural design to mortgage finance) rather than concentrate exclusively on carpentry.[39]

The primary roles of a major should be to create opportunities for contextual learning and cooperative learning, to enhance student motivation through an applied interest, to have students experience the progression from "novice" to "master" in a subject, and to give an organizing theme to the student's entire school experience.[40] Where appropriate, they can serve as the high

school component of "tech prep" or "2+2" sequences coordinated with post-secondary training. The major should also allow opportunities for developing higher order thinking skills, particularly through working in teams and completing large-scale projects. Student internships, "youth apprenticeships," and other periods of work experience can be fitted within majors, as appropriate.

What Should Graduates be Prepared to Do?

At first glance, the changes just recommended might appear to narrow the program of DCPS high schools to serve primarily the needs of students planning to attend post-secondary education. This is not so. The Commission believes that its approach serves all DCPS high school students, including those going directly from high school into the world of work.

This issue is raised most clearly by programs currently offered by DCPS high schools that lead to occupational licenses in such fields as cosmetology and practical nursing. These licenses seems to offer much-needed employment opportunities immediately after high school graduation. Under the Commission's proposals, increased academic requirements would tend to displace coursework in these fields, and even the courses that remain would provide less specific preparation for licensure; for example, coursework in cosmetology might focus less on techniques of shampooing and more on managing a beauty shop as a small business. As a consequence, these programs would generally require at least some training (for example, in a DCPS career center) after high school graduation.

The first reason the Commission takes its position is that the opportunities offered by most of these occupationally-specific programs are, in practice, more theoretical than real. The experiences of DCPS students, discussed in Chapter II, suggest that relatively few enrollees complete these certificate programs; among these, still fewer pass the required examinations and obtain licenses; and among these, still fewer find jobs in the field in which they are licensed. Thus, to reorganize these curricula to require some post-secondary training would not deprive high school graduates of job opportunities they currently have. Instead, it would direct them into paths more likely actually to lead to employment.

A second point is equally fundamental. As noted in Chapter II, most attractive careers today require some skill training beyond high school. For students who do not pursue a post-secondary degree, this means that gaining access to other training opportunities is essential. These opportunities might include:

- Becoming hired by an employer who provides skill training on-the-job;
- Taking a vocational skills course at a career center, proprietary school, or vocational center that leads to a license but not a degree;
- Receiving skill training while enlisted in the armed forces; or
- Becoming an apprentice in a craft occupation.

But in today's job market, the prerequisites for any of these options -- both those involving degrees from and those which do not -- are essentially the same. The most important are academic skills -- reading, writing, arithmetic, communication, and reasoning. Thus, for example, a primary obstacle to obtaining employment that provides skill training on-the-job is selection examinations covering academic skills. The current vocational education system, by requiring little rigorous preparation, often leaves its graduates without these prerequisites. The Commission's recommended approach, with its emphasis on academic skills, increases options for employment immediately after graduation, not just for further schooling.

The Commission's recommended approach increases options for employment immediately after graduation -- not just for further schooling.

Of course, if acquisition of specific job skills is to be de-emphasized at the secondary school level, then students need to be encouraged and assisted to continue to acquire such skills after high school graduation. The Commission recommends that this circumstance be addressed as follows:

R6. **Form Stronger Formal Linkages to Post-Secondary Training**. In occupational fields in which there is substantial demand in the Washington area and where a four-year college degree is not required, DCPS should develop "2+2" or "tech prep" coordination relationships with area post-secondary schools.

As was explained in Chapter II, under such plans, vocational course work during the last two years of high school are linked with post-secondary course work in a unified training sequence. Formal agreements governing these plans should be implemented with post-secondary training institutions throughout the Washington area, including DCPS's own career centers, the University of the District of Columbia, community colleges in surrounding jurisdictions, and local proprietary schools. For occupations in which career development involves apprenticeships, similar agreements should be concluded with Washington-area trade unions.

Changing the Style of Teaching and Learning

While the curriculum recommendations in this chapter change the courses a student must take, they appear to leave the content of many of these courses intact. After all, "English," "mathematics," and "social studies" sound like subjects with which we are all familiar. Nothing could be further from the truth! The Commission recommends profound modifications in the instructional style and educational philosophy prevailing within all classes, including "traditional" subjects. The theme of the new instructional style should be contextual and cooperative learning, the approaches discussed in Chapter II.

During the 1980s, the nation was swept by a wave of educational reform. The main thrust of this movement was strengthening graduation requirements, in a manner echoed by this Commission's own recommendations. Subsequent research has indicated that such changes in requirements, in the absence of changing instructional style, do little to help students, particularly inner-city student from minority backgrounds.[41] In other words, forcing students to take more traditional mathematics classes does not, by itself, mean that they learn more mathematics. On the other hand, reforming the educational style and simultaneously imposing high expectations and requirements does enhance student learning.[42] For this reason, the Commission's recommendations concerning changes in graduation requirements are meaningless unless accompanied by the changes in the style of teaching and learning the Commission also recommends.

Several courses within the Commission's recommended curriculum present obvious opportunities for contextual and cooperative learning approaches to be applied. These include the recommended course in career development in the ninth grade (Recommendation R12, below) and the four course sequence in a major field (Recommendation R5, above). However, the Commission by no means intends that contextual and cooperative learning styles be applied exclusively in such classes. Instead, the approaches should be pervasive in traditional classes as well -- for example, English, mathematics, and science.

This change in instructional style can be fostered in a number of ways, ranging from training individual teachers to pairing academic and vocational classes. As initial steps, the Commission recommends the following:

R7. **Make Contextual and Cooperative Learning Techniques Priority Topics for Teacher Training**. Teachers throughout the DCPS schools should be provided with training in two subjects: (1) the principles and techniques of contextual and cooperative learning; and (2) what are the work-readiness skills that students need to develop? This training should be provided to teachers in all subjects and at all levels, from elementary through post-secondary schools.[43]

R8. **Increase Teacher Exposure to the Applied Uses of Knowledge**. DCPS should recognize that, to be effective, every teacher requires exposure to the world in which the knowledge they teach is applied. This principle should extend to teachers in academic subjects as well as vocational ones. DCPS should solicit the cooperation of Washington-area employers in allowing short-term "internships" or other experiences during which teachers can receive this exposure. Every teacher should be required to participate in such activities at regular intervals throughout his/her career.

R9. **Link Academic and Applied Classes**. Mechanisms should be established for coordinated activities between academic classes and "major field" classes. These mechanisms might include "block scheduling" for certain sections of academic classes to link them explicitly to specific "major" classes.[44] Release time for planning or other assistance might be offered to teachers to enable them to develop creative approaches toward this goal.

R10. **Improve Linkages to the World of Work and to Employers.** Students should have access to structured work experiences, whether through upgraded cooperative education linked to classroom learning (sometimes called "youth apprenticeships") or school-based enterprises. Additionally, local employers should be utilized to provide guest speakers, plant tours, and similar short term events through which students can be exposed to the world outside their classroom. Such activities should encompass exposure to jobs and careers and, more broadly, the applied uses of knowledge. This exposure should be provided to students in all classes, but particularly in those fulfilling the career exploration and major field requirements.

Linkages between employers and the school system, such as are required to implement Recommendation 10, should be developed with multiple benefits in mind. In addition to opportunities for student work experience, placement of graduates into permanent jobs can be promoted. In addition to short-term speakers, employers should be enlisted to serve as advisors in curriculum development and as donors of state-of-the-art equipment.

Instituting a Large-Scale Remedial Initiative

Expanded remedial efforts could be structured in a number of patterns.

Another implication of the curriculum changes set forth in this chapter is that substantial increases will be required in the remedial education offered by DCPS. This need arises because students would no longer graduate from a District of Columbia high school without completing a number of difficult courses. Many DCPS students will not be immediately able to meet these standards without extra assistance.

Expanded remedial efforts could be structured in a number of patterns.[45] One option is to offer it during the summer months. This arrangement allows for concentrated attention, helps students to retain what they learned during the previous school year, and easily accommodates field trips and other activities supporting contextual learning. An alternative would be to deliver remedial activities before and/or after the regular school day or on weekends. In that approach, more immediate attention can be given to learning problems as they arise.

Commitment by DCPS to serious enhancement of remediation programs should be signaled not only by expanding the hours and classes devoted to remediation. It should also be reflected in the way remedial instruction is conducted. Remediation can either be designed as a safety net--providing a slower alternative sequence of courses that enables students to slip through to graduation -- or with a developmental focus -- having students catch up to their peers as rapidly as possible and join them in rigorous regular classes. Only the latter approach is consistent with the Commission's intent. Accordingly, it is important that students' problems be caught early and addressed immediately. This process should begin in elementary school. Particular effort should be concentrated in the seventh and eighth grades, so that all students begin high school prepared to succeed.

The Commission further intends that remediation should seek to develop "higher order" thinking skills as well as basic skills, and that the instructional style should utilize the learning styles of contextualized and cooperative learning. Remediation that consists merely of additional hours of instruction in the same mode which failed to teach the student during regular classes is unlikely to be effective.

Accordingly, the Commission makes the following recommendation:

R11. **Address Low Student Performance via Expanded Developmentally-Oriented Remediation.** Students not currently prepared to succeed in rigorous regular classes in fields such as English or mathematics should be enrolled in appropriate supplementary tutoring or remedial classes until they can succeed in regular classes. Remediation should be conducted in the contextualized and cooperative learning styles. While assistance should be provided at all grades where required, particular emphasis should be placed on the seventh and eighth grades to assure that students start high school fully prepared.

With the exception of students with identified needs for special education, the approach should be one of maintaining high classroom standards and high expectations for all students, combined with providing whatever support the student requires to fulfill these expectations.

Strengthening Vocational Guidance

As has been discussed in Chapters I and II, it is essential that sustained, systematic vocational guidance and counseling be provided to DCPS students throughout their junior high and high school careers. To provide for this, the Commission makes the following recommendations:

R12. **Require a Course in Career Exploration and the Requirements of the World of Work.** To graduate from a DCPS high school, every student should complete a one-semester course in vocational guidance and career exploration. This course should be taken in the ninth grade. During the course, each student should prepare a career development plan articulating occupational goals and setting forth an educational plan consistent with these goals. Students should also learn about how to find and keep jobs and the skills and personal qualities that employers value.

While many students will revise these plans during high school, completion of a plan (and revision of it in subsequent years, as required) will help both students and their guidance counselors focus on the consistency between the student's educational development and employment plans.

R13. **Systematize and Expand Vocational Guidance.** Throughout the high school years, periodic conferences between students and counselors -- at least once per semester -- should measure the students' progress against her/his career plan (see

Recommendation R12) and revise the plan as necessary. To provide continuity, the same counselor should stay with one group of students over multiple years. Additionally, certain counseling functions might be performed by teachers in students' major fields.

R14. **Expand Guidance Counselor Training**. Guidance counselors at both the junior high school and high school levels should be provided with in-service training to increase their understanding of the world of work and the role of career preparation. Counselors should receive priority for the training discussed in Recommendation R8. Counselors require command of both academic and vocational perspectives, and their credential requirements should require this breadth.

One deficiency noted in Chapter II was under-utilization of outside information and expertise in providing career information to students and staff. Concerning this deficiency, the Commission recommends as follows:

R15. **Strengthen Career Information Flows via Interagency Relationships**. DCPS should develop working arrangements with the District of Columbia's Department of Employment Services (DOES), the Private Industry Council (PIC), and State Occupational Information Coordinating Council (SOICC), through which these agencies would routinely provide speakers, career information, occupational forecasts, testing and counseling, and at-school job placement services for students. DCPS should also develop relationships with other organizations (including business associations, military recruiters, and the Fair Employment Council of Greater Washington) for the same purposes.

Systematizing the Sequence

Career preparation education should operate as a coherent sequence.

While many of the Commission's recommendations focus on the secondary school level, the proposed approach to career preparation is not limited to that level alone. Rather, it is a coordinated series of activities throughout grades kindergarten through twelve and beyond. Career preparation education should operate not as a collection of independently designed and administered activities and classes but as a coherent sequence.

To visualize this sequence, it is helpful to follow one hypothetical student through the District of Columbia Public Schools as the Commission believes the schools should operate.

Our hypothetical student enters the school system in pre-kindergarten. The development of emerging language skills is cultivated and reinforced. Mathematical concepts are explored with

object manipulation and other activities designed to increase problem solving skills and abilities. Student self-esteem and social skills are strengthened also. Development is further reinforced with activities designed to prepare her for the critical thinking and reasoning exercises that follow in the elementary curriculum. The early childhood program strives to provide a strong foundation upon which career competencies can be built.

Career exploration for our student begins in earnest in elementary school. Throughout her first six grades, she is exposed to a variety of occupations. In the earliest grades, discussion focuses on occupations easy for younger children to understand -- fire fighter, astronaut, teacher, doctor, ballerina, or truck driver. Later, she learns about occupations such as lawyer, factory worker, or business owner. At this stage, the emphasis is on learning about the activities of each occupation, understanding the purpose and usefulness of those activities, and visualizing herself in these roles. Field trips, guest speakers, and "hands on" projects all contribute toward these objectives, within an organized curriculum in which occupational exposure is an explicit educational objective.

Junior high school is a pivotal stage for our student. She receives her important lessons about the world of work -- for example, the concept of employees' providing effort and expertise in return for wages, workplace relationships and appropriate behavior, and the personal characteristics sought by employers. Her exploration of careers becomes more focused as she is introduced to the occupations associated with the "majors" offered in high school. She learns about the duties in different occupations, the earnings each occupation commands, and training and other prerequisites for entering the occupations. The most systematic and concentrated delivery of such information occurs during the semester-long career exploration course that she takes during the ninth grade. However, since all her classes utilize contextual learning and cooperative learning as instructional strategies, she receives substantial amounts of information through other courses as well.

During her career exploration class, she selects a general career direction. This choice is important, and her parents are invited to join in class discussions and one-on-one meetings. She has taken a number of aptitude and interest tests that also help her to decide. Thinking that she might become a doctor or a biologist, our student chooses to major in health sciences.

During junior high school, our student earns several bad grades in mathematics. This is noticed by her counselor in their regular meeting each semester; this counselor is familiar with our student because that counselor is assigned to work with this student's class over multiple years. The counselor points out that to earn her high school diploma, she will have to complete algebra and geometry; additionally, referring to the student's interest in the health sciences, the counselor notes that mathematical skills are required for such activities as calculating dosages of medicines. The student is referred to a tutor for 45 minutes two or three times per week for the remainder of the school year. By the end of the school year, she has returned to grade level in mathematics, and the next year she earns a B in algebra.

Upon entering high school, our student's written career plan guides her selection of classes. Her class schedule consists primarily of English, mathematics, science, and similar "academic" subjects. One class each semester during her last two years will be in her health sciences major. However, many of her "academic" classes are for health science students. In English, she reads novels about medicine (as well as Shakespeare); in her social studies class, she spends a week interning in the District of Columbia's Commission on Public Health and then writes her term paper on the project to which she was assigned; and when her major class makes a field trip to D.C. General Hospital, she learns how the dietician uses mathematics to scale recipes to feed hundreds of patients.

Through her high school experiences, our student shifts her focus to the occupation of registered nurse. Upon graduation, she enrolls at the University of the District of Columbia to obtain a R.N. credential. Her strong high school academic record means that she needs no remedial courses before starting nursing training. And, because DCPS has a "tech prep" relationship in the health sciences with the University, her U.D.C. classes pick up exactly where her high school courses left off.

Because our student's family has limited income, she decides to pursue her post-secondary education while working. She secures part-time employment as an aide at a health maintenance organization medical center; the administrator at that facility hires many DCPS graduates because he has been a guest speaker at our student's high school and was impressed with the quality of the health sciences major. The job provides practical experience as well as income. Furthermore, the administrator offers to hire our student full time as a registered nurse as soon as her credential is complete.

IV. Implementing the Commission's Recommendations

The Commission recognizes that the process of achieving major-scale change within DCPS is complex.[46] It therefore neither proposes nor expects that all recommendations presented in this report be implemented immediately. Rather, the Commission calls upon DCPS to adopt these recommendations as goals; to make a clear commitment to their eventual achievement, embodied in a specific schedule; and to begin initial steps consistent with the long-range goals. This chapter recommends some of these initial steps.

Organizing to Continue the Reform Process

The Commission on Vocational Education and Career Opportunities has been a temporary entity. If its recommendations are to be implemented, other organizations will have to carry on its work.

DCPS itself must take primary responsibility, with some matters devolving on the Office of Vocational Education and others requiring the attention of the Superintendent. In January 1992, the District of Columbia Board of Education created a Committee on Vocational, Career, and Adult Education, with oversight responsibilities for implementation of the Commission's recommendations.

The Commission suggests that a special working group be formed to spearhead and coordinate career preparation reform activities within DCPS. This working group should be chaired by a high-level DCPS official with authority over both academic and vocational education.

Implementing the Commission's recommendations will require the cooperation of many parties outside the school system.

The Commission further suggests that an organization independent of DCPS but familiar with and supportive of public education in Washington should work with DCPS in the reform process. Implementing the Commission's recommendations will require the cooperation of many parties outside the school system, including the business community, funding sources, institutions of higher education, parents, and the community at large. A respected outside organization can assist DCPS in securing this cooperation. In addition, participation by an outside group may accelerate the process of change within DCPS itself.

A second role for outside assistance is also important. This involves expertise at the level of classroom and curricula, to advise on such issues as how to coordinate academic and vocational education, how to retrain teachers, and how to implement contextualized learning, and how to

test student achievement. The Commission suggests that DCPS utilize a nationally-respected national research center as a technical advisor on these matters throughout the implementation process.

Will Additional Funds be Required?

Considerable progress can be accomplished through reallocation of existing resources, although additional budgetary outlays will also be required.

Given the stringent fiscal environment which DCPS currently faces, any program of reform that calls for substantial new expenditures must be considered cautiously. However, it would be unrealistic to assert that all Commission goals can be achieved with no additional budgetary resources. In particular, a large-scale remedial initiative is both central to the Commission's approach and potentially expensive.

Nevertheless, the Commission believes that considerable progress can be accomplished through reallocation of existing resources and more efficient use of these resources. For example:

- DCPS currently receives substantial federal funds for program improvement under the Carl D. Perkins Vocational Education and Applied Technology Education Act. This law accords priority to the sorts of actions the Commission is recommending, including academic-vocational integration, retraining of both academic and vocational teachers, and implementation of "2+2" programs.

- Staff to provide systematized and enhanced vocational counseling (Recommendation R13) can be obtained by returning counselors to counseling duties from the other administrative duties they currently fulfill, as well as by integrating counseling and teaching functions within students' major fields.

- Staff and classrooms for new courses in computer literacy (Recommendation R4), major fields (Recommendation R5), and career exploration (Recommendation R12), as well as new requirements in mathematics, science, and social studies (Recommendation R3) can be obtained from courses (including traditional vocational education courses and numerous electives) that will no longer be taught, as well as from special projects (such as Academies and Public Private Partnerships) that will be reconstituted as majors.[47]

- Training for teachers and counselors in techniques of contextual and cooperative learning and in the applied uses of knowledge (Recommendations R7, R8, and R14) can be incorporated within ongoing in-service training activities and professional continuing education requirements.[48]

- Expanded programs of developmentally-oriented remediation (Recommendation R11) can be financed from existing federal "Chapter I" funds earmarked for disadvantaged students. Additionally, volunteer resources might be mobilized, both from individuals and community based organizations and churches.

Rationalizing the Administrative Structure

The Commission's recommended approach to career preparation education creates a paradoxical situation with respect to administrative management. On the one hand, the Commission calls for integrating academic and vocational education. This suggests that vocational education should lose its separate administrative identity. On the other hand, the Commission calls for strengthening the career-oriented aspects of DCPS's programs, and that is unlikely to occur without an identifiable, strong advocate within DCPS's top management.

In recognition of the latter consideration, the Commission suggests that DCPS continue to have a distinct entity within its management structure with responsibility for career-oriented educational activities. In August 1991, DCPS Superintendent Franklin Smith established an Office of Vocational Education under the Associate Superintendent for Special Programs and Alternative Education and appointed Dr. Cynthia Bell as its director. This is an important initial step. To further this arrangement, the Commission suggests that this office be given authority over career-oriented special projects and independent programs that have proliferated within DCPS. In addition, duplication should be eliminated between the "state agency" and "local agency" functions within DCPS management.[49] Both functions should be consolidated under the Associate Superintendent for Curriculum and Instruction.

Concurrent with these rearrangements, other administrative vestiges of vocational educations's isolation from mainstream education should be abolished. Specifically:

- As noted in Chapter II, many vocational education teachers within DCPS are employed under waivers and do not have regular teaching credentials.[50] Indeed, their credentials are evaluated by an office within vocational education that is separate from the office evaluating the credentials of all other teachers. This separate office should be phased out, and all teaching staff should be made subject to the same credential requirements.[51]

- Also as noted in Chapter II, DCPS employs two different groups of counselors -- "regular" counselors with professional training supervised by the Associate Superintendent of Student Services and "career counselors" without formal counseling credentials supervised by the vocational education office. This administrative separation should be ended, and all counselors should be made subject to the same credential requirements and standards. These requirements should include a thorough knowledge of the world of work requirements, career options and how to use labor market information.

- Vocational education currently maintains a staff for curriculum development separate from DCPS's main curriculum development staff. This separation should be ended.

Finally, issues must be addressed concerning the division of decision-making authority between DCPS's central administration and school principals. DCPS's current emphasis on site-based management empowers principals in junior high schools and senior high schools to decide what vocational education courses, if any, to offer at their schools. Such decentralization creates difficulties in coordinating programs among schools, as well as in assuring that policies are followed and standards maintained city-wide. Career preparation opportunities at certain schools are particularly limited because some principals are hostile to vocational education.

If the Commission's recommendations are implemented, District-wide policy will replace principals' discretion with respect to several aspects of the curriculum, notably a mandatory class in computer literacy, a mandatory class in career exploration, the proliferation of special projects, and the number of electives. Furthermore, while principals should play an active role in determining which major fields should be offered at their schools, centralized coordination of these decisions should be maintained.[52]

Changing the Image of Career-Oriented Education

The Commission suggests that DCPS abolish the term "vocational education."

Last but not least comes the issue of the image of career preparation education. As discussed in Chapter II, traditional vocational education carries a number of stigmas--as education for "dummies," as a residue of segregation, and as a second-class system. An important part of the process of changing the reality is changing the image. As one step in this process, the Commission suggests that DCPS abolish the traditional term "vocational education" and replace it with one that is both broader and more modern -- perhaps career preparation education. This change will mark an important symbolic break with the flawed past -- as the Commission hopes its own report does also.

Appendix

Consultants and Liaisons Assisting the Commission

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Endnotes

1. Committee on Strategies to Reduce Chronic Poverty, **Opportunity Ladders: Can Area Employment Possibilities Improve the Prospects for Washingtonians in Long-term Poverty?** (Washington, D.C.: Greater Washington Research Center, 1988).

2. National Center on Education and the Economy, **America's Choice: High Skills or Low Wages?** (Rochester, N.Y.: The Center, 1990).

3. The Commission recognizes that the school system has many roles in addition to preparing its students for employment. These include preparing students to be informed citizens, competent parents, responsible members of their communities, and cultured individuals. While the Commission's mandate leads it to focus on a single objective, it does not deny the importance of these other educational goals.

4. The May 1991 **Summary Report on Vocational Education** prepared by DCPS's Office of State Operations states:

> *The mission of vocational education is to ensure that all completers have career opportunities, develop skills that are marketable and are prepared to compete effectively in today's technological world.*

The mission outlined in the present report is generally consistent with this statement. The key difference is that the Commission's approach is not restricted to vocational education students, let alone vocational education "completers."

5. **A Time to Act, A Report of the District of Columbia Committee on Public Education** (Washington, D.C.: The Committee, 1992), p. 9. Precise figures on dropouts are difficult to develop because of students moving in and out of a locality and former students later returning to school to receive a diploma or a G.E.D. certificate; see **Dropout Rates in the United States: 1990** (Washington, D.C.: National Center for Educational Statistics, 1991).

6. **America 2000: An Educational Strategy** (Washington, D.C.: U.S. Government Printing Office, 1991), p. 19.

7. Kathy D. Tuck, **A Study of Students Who Left: DC Public School Dropouts** (Washington, D.C.: DCPS Division of Quality Assurance and Management Planning, October 1988).

8. **The Bottom Line: Basic Skills in the Workplace** (Washington, D.C.: U.S. Department of Labor, 1988), and Marc Bendick, Jr. and Mario Cantu, "The Literacy of Welfare Clients," **Social Service Review** (March 1978), pp. 56-68. The remaining statements in this and the following paragraph are based on: Marc Bendick, Jr., and Mary Lou Egan, **Jobs: Employment**

Opportunities in the Washington Metropolitan Area for Persons with Limited Employment Qualifications (Washington, D.C.: Greater Washington Research Center, 1988); Sar Levitan and Frank Gallo, **Got to Learn to Earn, Preparing Americans for Work** (Washington, D.C.: Center for Social Policy Studies, 1991); and **Handbook of Labor Statistics** (Washington, D.C.: U.S. Department of Labor, 1989).

9. **What Work Requires of Schools: A SCANS Report for America 2000** (Washington, D.C.: the Secretary's Commission on Achieving Necessary Skills, U.S. Department of Labor, 1991), p. vii. Other studies that generate similar lists are: **Academic Preparation for the World of Work** (New York: The College Board, 1984); Anthony P. Carnevale, et al., **Workplace Basics: The Skills Employers Want** (Alexandria, VA: American Society for Training and Development, 1988); and **High Schools and the Changing Workplace: the Employers' View** (Washington, D.C.: National Academy Press, 1984).

Studies that focus on the Washington area confirm that the same skills and characteristics in these national lists are desired among local employers. See Myles Maxfield, **Getting Hired: Characteristics Employers Prefer in Unskilled Applicants** (Washington, D.C.: Greater Washington Research Center, 1988); Marc Bendick, Jr., and Mary Lou Egan, **Jobs: Employment Opportunities in the Washington Metropolitan Area for Persons with Limited Employment Qualifications** (Washington, D.C.: Greater Washington Research Center, 1988); and Mary Lou Egan and Marc Bendick, Jr., **Managing Greater Washington's Changing Work Force** (Washington, D.C.: Greater Washington Research Center, 1991).

10. These data are from DCPS's Research and Evaluation Branch. The findings should be interpreted cautiously because only 16 percent of graduates were contacted.

11. SAT scores are from William Niskanen, **The District of Columbia: America's Worst Government** (Washington, D.C.: Cato Institute, November 18, 1991), p. 6. CTBS scores are from **A Time to Act, A Report of the District of Columbia Committee on Public Education** (Washington, D.C.: The Committee, 1992), p. 7.

12. DCPS's most successful program in terms of licensing is at M.M. Washington High School, where more than eighty percent of students completing the practical nursing program pass the PN licensing exam.

13. Under DCPS' "diploma plus" program, students at certain high schools can receive official recognition of their occupational training. If the student elects appropriate courses over a two or three year period starting in the tenth grade, s/he will graduate with a high school diploma and a certificate of competency in one of six occupational clusters--Marketing, Trades and Industry, Home Economics, Health Occupations, Cooperative Education, or Business. One or more "Diploma Plus" programs is offered at Bell Multicultural High School, Chamberlain Career Center, McKinley/Penn High School, Phelps Career High School, Burdick Career Center, and M. M. Washington Career High School. For example, Chamberlain offers training in marketing, cosmetology, barbering, shoe repair, watch and jewelry repair, office machine repair, accounting, bookkeeping, word processing, and court reporting.

14. Actually, DCPS maintains two separate counseling staffs. "Regular" counselors are supervised by the Associate Superintendent of Student Services, hold college degrees, and concentrate on academic counseling and course selection. "Career counselors" are supervised by the Office of Vocational and Adult Education, typically have practical work experience but limited training in counseling, and focus on job placement for students near graduation. Thus, most students are guided throughout most of their school careers by staff not extensively acquainted with the world of work.

15. Of particular relevance are publications of the U.S.Department of Labor (such as the excellent **Occupational Outlook Handbook** (Washington, D.C.: U.S. Department of Labor, updated annually), as well as information from the District of Columbia State Occupational Information Coordinating Committee (SOICC) and the Bureau of Labor Market Information of the District of Columbia Department of Employment Services.

16. The school system has had seventeen superintendents or acting superintendents over the last 24 years, with four superintendents in the past four years. These changes have resulted in abrupt shifts in programs and policies. Some observers argue that, because of its perceived limited importance, vocational education has been particularly susceptible to disruptions from leadership changes.

17. These circumstances include violence in the community, drug use, teenage pregnancy, homelessness, and unstable family environments.

18. According to Parents United, in 1990, 96.1 percent of DCPS students were members of a racial or ethnic minority group; 63.1 percent of elementary school pupils were sufficiently low income to receive free or reduced-price school lunches; and 7.9 percent of students required special assistance because of limited command of English.

19. **National Assessment of Vocational Education, Summary of Findings and Recommendations** (Washington, D.C.: U.S. Department of Education, 1989), especially pp. x-xiv.

20. "Manual and industrial training" started in industrial high schools in the District of Columbia during the 1870s. The first federal legislation for vocational education--the Smith-Hughes Act--was enacted in 1917. The District appointed its first Advisory Committee on Vocational Training in 1929.

21. **Workforce 2000** (Washington, DC: U.S. Department of Labor, 1987); Michael Piore and Charles Sable, **The Second Industrial Divide** (New York: Basic Books, 1984); and Henry Levin, Gerald Burke, and Russell Rumsberger (eds.), **The Future Impact of Technology on Work and Education** (New York: The Falmer Press, 1987).

22. This deficiency has been noted repeatedly for more than a decade--dating back at least to a DCPS **Industrial Arts Status Report** issued March 21, 1980--but little action has been taken.

23. In 1967, local civic activist Julius Hobson, Sr. mounted a legal challenge against the tracking system then operated by DCPS, charging that placing white students in the academic track and blacks into the general or vocational tracks institutionalized segregation. His landmark suit, titled Hobson v. Hansen, ended official tracking in the District of Columbia as well as separate schools for blacks.

24. For example, DCPS has compiled the following comparison of test scores for ninth grade students enrolled in academic high schools and those enrolled in vocational high schools:

Average Performance (Grade Level) of Ninth Graders

Subject	Academic High Schools	Career-Focused High Schools
Reading	9.8	7.0
Mathematics	10.0	7.6
Language	9.9	6.2
Science	9.6	6.0

These data should be interpreted cautiously because the scores for vocational schools are based on only two schools, there were major differences in scores between those two schools, and the gaps between the two types of schools vary over grades 9 through 12.

25. Many vocational education teachers are hired in a special category in which they are not required to have a college degree. While the goal of this waiver is to hire persons who have practical training and work experience, many actually have little contact with current practices in their fields. Furthermore, their lack of standard teacher preparation leaves them less equipped for many of the roles their jobs require, including providing de facto remedial education, developing in students the higher-order thinking skills employers seek, and coordinating with academic teachers.

26. The choice of fields in which occupational training is offered by DCPS often reflects historical tradition, industry pressure, or staff availability rather than systematic analysis of employment opportunities in the Washington area. Within occupational fields, the content of training is often unrelated to current practices in the field because it is keyed to outdated equipment (for example, keyboard skills are often taught on typewriters rather than word processors) or because the curriculum has not been recently revised. A formal process called DACUM (Developing a Curriculum) is used by DCPS to involve a panel of outside experts in defining the skills and abilities required for employment in an occupation. However, the DACUM process takes more than two years to review one field, and there are only two curriculum writers for all DCPS vocational education. In consequence, more than 70 percent of DCPS vocational education programs have not undergone the DACUM process or are currently overdue for updating.

27. Senta Raizen, **Reforming Education for Work: A Cognitive Science Approach** (Berkeley, CA.: National Center for Research in Vocational Education, 1989), and Nancy E. Adelman, **The Case for Integration of Academic and Vocational Education** (Washington D.C.: Policy Studies Associates, Inc., February 1989).

28. For example, Terezinha Nunes Carraher, et al., in "Mathematics in the Streets and in the Schools," **British Journal of Developmental Psychology** (1985), pp. 21-29, reports that young children solve arithmetic problems when buying and selling things on the street that they cannot solve when the identical problem is posed in an abstract academic form in a classroom.

29. Susan F. Chipman, **What is Meant by Higher Order Cognitive Skills?** (a paper prepared for the National Assessment of Education Progress, March, 1987) and Lauren B. Resnick, **Education and Learning to Think** (Washington, D.C.: National Academy Press, 1987).

30. Additional projects include: the Career Enrichment Program in three elementary schools and selected junior high schools; the Widening Horizons career orientation program at the junior high school level; and Project Explore and Project Enrich at the senior high school level.

31. The Public Private Partnerships programs are:

High School	Focus	Partners
Woodson	Business and Finance	20
McKinley/Penn	Communications	15
Burdick	Culinary Arts	24
Eastern/M.M. Washington	Health Professions	13
Wilson	International Studies	7
Spingarn	Pre-Architecture	12
Dunbar	Pre-Engineering	11
Coolidge	Teaching Professions	9
Roosevelt/Burdick	Travel and Tourism	6

32. Current academy projects are:

High School	Focus	Partners
Anacostia	Public Service	Office of Personnel Mgmt., GWU, American Society of Public Administration
Cardoza	Transportation technology	US Department of Transportation, Wash. Regional Airports Authority, Metro, Amtrak, U. of MD, UMTA, Amer. Public Transit/Trucking Assns.

Spingarn	Leadership	US departments of Defense, Justice, Treasury; Secret Service, IRS, Customs, ATF, Howard U., Nat'l. Challenger Center, Amer. Soc. Industrial Security
Ballou	Earth Technology	EPA, US Department of Energy
Coolidge	Ecological Sciences	US departments of Agriculture, Interior

33. For example, among participants in the Public Private Partnership program during 1989-1990, 23 percent were on their school's honor roll, 22 percent participated in advance course work at local colleges and universities, and 84 percent of graduates went on to higher education.

34. Pre-graduation data are from DCPS's Graduate Exit Reports. Post-graduation data are from DCPS's Research and Evaluation Branch. The latter data should be interpreted cautiously because only 16% of graduates were contacted.

35. Dan Hull and Dale Parnell, **Tech Prep Associate Degree, A Win/ Win Experience** (Waco, TX: Center for Occupational Research and Development, 1991).

36. A less bold approach would eliminate only the "general" track and requiring every student explicitly to select either an academic or a vocational option. That approach has been taken in a number of jurisdictions. For example, in Pittsburgh, students must enroll in either an "academic" track or one labeled "Career Development and Applied Technology."

In selecting its approach, the Commission reasoned as follows. The recommendations in this report call for substantial convergence in the graduation requirements for students with either "college preparatory" or "vocational" goals. Remaining differences between the two tracks would then be limited to a small number of elective courses. In that circumstance, the further step of abolishing all tracks is relatively costless while symbolizing a clean break with the past.

Symbolism aside, essentially the same results can be obtained while retaining a two-track approach--**if** course requirements for the Career Preparation/Applied Technology track are sufficiently rigorous.

37. **What Works: Research About Teaching and Learning** (Washington, D.C.: U.S. Department of Education, 1987), p. 75.

38. Standardized testing can play an important role in establishing and maintaining academic rigorous academic standards. However, that testing must be sophisticated, to emphasize "higher level" thinking skills rather than rote memorization. Ideally, it should move well beyond multiple

choice "paper and pencil" tests to include evaluations of portfolios, "job passports" enumerating mastery of specific work-related skills, and similar approaches. These complex issues are currently being explored by the federal government's National Commission on Standards and Assessment.

39. The concept of teaching all aspects of an industry is a central theme of the major federal legislation governing vocational education, the Carl D. Perkins Vocational Education and Applied Technology Education Act.

40. As an example of that final role, linkages to a major might be a criterion used to select how students fulfill their requirement to perform 100 hours of community service.

41. This research, conducted by Thomas Hobbs of the U.S. General Accounting Office in 1989 and 1990, examined the experiences of students in four large school districts. Following increases in the stringency of graduation requirements, student achievement for Hispanic students did not increase, and that for Black students increased only slightly. See **Educational Reform: Initial Effects in Four School Districts** (Washington DC: US General Accounting Office, 1989).

42. This conclusion is based on research (currently being completed for the National Center for Research on Vocational education by Robert Crain and Amy Heebner of Columbia University) with students involved in "magnet" schools in New York City. Substantial improvements in student performance--as measured by reductions in dropout rates, increases in reading skills, and increased likelihood of taking advanced tests in mathematics--were observed among students involved in "contextualized" learning. These effects were particularly significant for students in the middle range of academic performance.

43. The relatively low rate of turnover among DCPS teachers, in combination with a shrinking student population, means that few opportunities will arise for changing classroom practices by hiring new teachers. Staff retraining is therefore essential.

Once teachers become exposed to the new approaches, they can become agents of change "from the bottom up." Research on the experience of other school systems implementing major changes in vocational education suggests that reform proceeds most effectively if principals and teachers have a substantial role in developing the reforms.

44. For examples, see W. Norton Grubb et al., **The Cunning Hand, The Cultured Mind: Models for Integrating Vocational and Academic Education** (Berkeley, CA: National Center for Research on Vocational Education, 1990).

The most fully-developed form of linked relationships would involve establishing within each secondary school a matrix organization. Each teacher within the school would then have a dual relationship for purposes of administrative reporting and evaluation. One relationship--that already exists--would be to an subject matter department, such as the English Department. The second would be to a work team affiliated with a major field, representing an area in which knowledge is being applied. Generally, school systems have found such an approach difficult

to implement. Nevertheless, the concept captures the spirit of academic-vocational integration so fully that it is important to consider as a long-run goal.

45. Opportunities for remediation would be enhanced if DCPS adopted the recommendations of the Committee on Public Education (COPE) to lengthen the school day and school year; see **Our Children, Our Future, Revitalizing the District of Columbia Public School** (Washington, D.C.: The D.C. Committee on Public Education, 1989).

46. That these matters are complex and difficult is readily apparent from two observations.

First, essentially no school district in the country has entirely solved the same problems we have identified for DCPS. Some school systems have made considerable progress, and these are cited in this report as possible models for local reform. However, no school system has fully implemented an ideal system.

Second, several times in the past, DCPS itself has grappled with the same problems this Commission is addressing, and each time it has failed to resolve them in a fully satisfactory fashion. Of particular note are the "Passow" report prepared during the late 1960s, the work of Phyllis Young and Susie Morgan in 1988, and the Brasman study in 1989.

47. As a result, DCPS's **Secondary Master Course List** of more than 800 courses should shrink dramatically. That alone would be progress toward resolving certain problems noted in the recent **Curriculum Audit of the District of Columbia Public Schools** (Arlington, VA.: National Curriculum Audit Center, 1992).

48. Each year, DCPS is supposed to provide four days of in-service training days for teachers; in practice, however, these days often are occupied with staff meetings and other administrative activities rather than training. In addition, to maintain certification, teachers are required to complete six credit hours of college courses every five years, not necessarily in the field in which the teacher is teaching. Suitably improved, these two mechanisms can deliver substantial training.

On a more ambitious scale, other school systems comparable to DCPS have implemented more elaborate retraining as part of vocational education reform. For example, Louisville has undertaken an across-the-board reform of vocational education which, like that recommended here, emphasizes integration of academic and vocational education. Their approach focuses each high school on an occupational cluster. As part of this reform, the school district created a district-wide training institution, the Gheens Academy, to retrain teachers in the concepts of integrated and articulated education required by the occupational clusters, as well as cooperative learning techniques and site based management. All teachers involved in the occupational clusters are expected to attend the Academy's rigorous program. These teachers also return to the Academy periodically for skill updating.

49. Uniquely in the nation, the District of Columbia Public Schools operates as both a state education agency and a local education agency. Dr. Bell's office functions as the local education agency. Currently, a separate office--that of the Assistant Superintendent for Vocational Education--functions as the state agency.

50. Teachers with "regular" credentials--more than 6,000 of them--are classified by DCPS as ET-15s, permanent academic teachers. Under the waiver arrangement, about 394 career education teachers without these credentials are employed as EG-9s, "temporary indefinite" employees.

51. This recommendation refers only to staff employed in teaching students through the twelfth grade. DCPS might employ skilled trade workers without teaching credentials in their programs of adult education and post-secondary programs where, under the Commission's proposals, the majority of training in occupationally-specific skills is to take place.

52. Coordination will be particularly crucial for majors which involve expensive, state-of-the-art equipment or facilities. Such majors should be offered only in schools where up-to-date, fully functioning training facilities can be supported.